

1. Ecological Risk Assessment

Ecological Risk Assessments (ERAs) are prepared in phases (sometimes referred to as tiers or levels) as recommended by the US Environmental Protection Agency (EPA, 1997 and 1998), the California Department of Toxic Substances Control (DTSC, 1996), and others (e.g., Suter et al. 2000). This approach entails increasingly sophisticated levels of data collection and analysis, wherein the conservative assumptions of the initial evaluations are replaced by more site-specific data and more ecologically realistic assumptions. Using a phased approach results in doing all the work that is necessary, but only that which is needed for completion of the assessment. A tiered process also serves to reduce conservatism and uncertainties in the risk assessment, and focuses effort on issues most likely to drive remedial actions. There are generally three phases in ERA: Scoping Assessment, Screening-level ERA (SLERA), and Baseline ERA (BERA).

Upon evaluation of the results from each phase, a review is conducted to determine whether risk management objectives can be achieved or whether more site-specific analysis is warranted. The results of each assessment phase are used to demonstrate whether the concentration of the contaminants in site media pose a potential threat to ecological receptors. Several actions can be taken upon completion of each assessment phase:

- *No Further Action.* No potential for ecological risk is concluded by determining that there are no complete exposure pathways between contaminants and receptors or finding contaminant concentrations at the site do not exceed screening-level benchmarks. No further assessment or remediation is warranted.
- *Perform a Higher-level Assessment*. Contaminant concentrations at the site exceed screening benchmarks and a refined screening or the next assessment phase is conducted with more rigorous, less conservative analysis and/or more site-specific data.
- *Collect Additional Data*. Insufficient data are available to complete an initial risk assessment or there are data gaps to address. Additional data may be collected to provide more site-specific information and to perform more sophisticated analyses in a higher assessment phase.
- Reduce Concentration Levels. The potential for risk to ecological receptors exists. Recommendations may include reducing contaminant concentrations through remedial actions (e.g., excavation and hauling, in-situ treatment, ex-situ treatment) to meet the ecological screening benchmarks.
- *Reduce Potential Exposure.* The potential for risk to ecological receptors exists. Management techniques may be recommended to restrict exposure to contaminants in surface water, sediment, soil, or groundwater remaining at the site (e.g., engineering barriers).
- Any combination of the above actions.

A Scoping Assessment was conducted at the Omega Site consistent with the approach described above. Scoping Assessments are performed to determine whether plants or animals may be exposed to Site contaminants and whether further ERA work is required. Risk can occur only when there is a chemical source, a receptor, and a route of exposure between the source and receptor. A SLERA is recommended only if the Scoping Assessment has determined there is a source of contaminants, receptors are or may be present, and current or future land-use or off-site contaminant migration dictates that receptors may be exposed (DTSC, 1996; Suter et al., 2000).

Representatives from USEPA, DTSC, and CH2M HILL performed a reconnaissance-level field assessment at the Omega Site on May 18, 2007. This site visit was performed as part of the Scoping Assessment by touring OU1 on foot and OU2 by car. Photos and an Ecological Checklist documented the site conditions at the time of the field visit (**Attachment 1**).

Volatile organic compounds (VOCs) and other contaminants occur in groundwater located 30-100 feet below ground surface (bgs) at the Omega Site. The plume is spread throughout an area of about 2.5 square miles beneath a typical urban industrial/commercial setting. The plume originates at 12504 Whittier, Blvd., Whittier, CA, and extends about 4 miles southwest (**Figure 1-4**). No transport mechanism brings contaminated groundwater to the surface where it would be available to ecological receptors. Volatilization of organic contaminants from groundwater and vapor transport through subsurface soils are the sole mechanisms for transport of VOCs to the surface. Very low concentrations of VOC vapors were detected in confined spaces (i.e., buildings) at or near the surface at OU1 (CDM, 2007), and soil gas investigations at OU2 concluded that VOC vapors do not pose significant risk to residents (Appendix L).

Ornamental trees and small areas of landscaped grass represent extremely limited habitat and a very limited diversity of ecological receptors. One small urban park within OU2 and two urban parks adjacent to the OU2 boundary offer recreation areas for residents, but provide little habitat for wildlife. Bird species tolerant of urban settings (e.g., crows, pigeons, sparrows) were the only wildlife observed at the Site.

The presence of contaminated groundwater at a site by itself is usually not a basis for conducting an ecological risk assessment unless there is discharge to surface water or the near-surface root zone where ecological receptors could be exposed (Suter et al., 2000). The closest water body to the site is the San Gabriel River. It runs parallel to the site about one mile northwest of the northwestern OU2 plume boundary. All other surface water drains over the site into concrete-lined washes and drains where there is no potential for contact with contaminated groundwater because the drains are above the water table.

There are no complete exposure pathways between contaminants and receptors, and no potential for risk to ecological receptors because of the depth to contaminated groundwater at the Omega Site (30-100 feet bgs). Ecological receptors are also not present at OU1 and OU2 due to the lack of suitable habitat. Although VOC vapors have been detected in confined spaces at or near the surface of OU1, wildlife does not occupy these confined spaces and there is no potential for exposure to these vapors. There are no naturally occurring burrowing birds or mammals at OU1 due to the lack of suitable habitat. Therefore, there is no potential for exposure of wildlife to contaminated soil at OU1. The conclusion of the Scoping Assessment is that there is no potential for risk to ecological

receptors from groundwater or soil contaminants at OU1 and OU2. Therefore, no further action is warranted. Scoping assessments may be required for the facilities that are sources of contamination at OU2, depending on the specific conditions at these facilities.

2. References

California Department of Toxic Substances Control (DTSC). 1996. *Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities*. Human and Ecological Risk Division. Sacramento.

Suter, G.W. II, R.A. Efroymson, B.E. Sample, and D. S. Jones. 2000. Ecological Risk Assessment for Contaminated Sites. Lewis Publishers, Boca Raton, FL. 438 pp.

U.S. Environmental Protection Agency (USEPA). 1997. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final*. Office of Solid Waste and Emergency Response. U.S. EPA 540-R-97-006. June.

U.S. Environmental Protection Agency (USEPA). 1998. Final Guidelines for Ecological Risk Assessment, Risk Assessment Forum. U.S. USEPA, Washington, D.C., USEPA/630/R-95/002F. April.

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Attachment 1 Site Visit Eco-Checklist

Checklist for Ecological Assessment/Sampling

I. SITE DESC	CRIPTION				
1. Site Name:	Omega Site OU2				
Location: 125	04 Whittier Blvd	. Whittier, Califo	rnia, 90602		
County: Los A	County: Los Angeles City: Whittier State: CA				
2. Latitude:	33°58'10.72"	Longitude: 118	9°02'37.20"		
UTM 11 403	609E 3759115N	I (NAD27)			
represented by plume originate width varies fro	an urban industri es at 12504 Whitt	al/commercial center, Blvd. and extend 1500 to 4500 fee	The site covers approximately 2.5 square miles and is nter overlying a contaminated groundwater plume. The ends approximately 4 miles southwest. The plume et. Roughly located between Washington Blvd and hway 5.		
4. Is this the fi available.	irst site visit? 🛚	yes no If no	, attach trip report of previous site visit(s), if		
Date(s) of pre	vious site visit(s)	: n/a			
5. Please attac	ch to the checklis	st USGS topogra	nphic map(s) of the site, if available. attached		
	-		ble? \boxtimes yes \square no If yes, please attach any usion of this section.		
Photographs of	the site are include	ded.			
7. The land us	se on the site is:	The are	ea surrounding the site is: one mile radius		
(<u>100</u> % Urban)			(<u>100</u> % Urban)		
<u>0</u> % Rural			<u>0</u> % Rural		
2 % Residentia	ıl		40 % Residential		
50 % Industria	l (🛛 light 🕅 hea	avy)	25 % Industrial (⊠ light ☐ heavy)		
0 % Agricultur	al		0 % Agricultural		
2% Recreational (residential park) 5 % Recreational (residential parks)					
<u>0</u> % Undisturbed <u>0</u> % Undisturbed					
46 % Other (commercial) 40 % Other (commercial, churches, school, etc.)					

8. Has any movement of soil to likely cause of this disturbance		yes no. If yes, please identify the most		
Agricultural Use	Heavy Equipment	Mining		
☐ Natural Events	Erosion (Sloughs)	○ Other		
Please describe: Site graded for	or urban development			
e.g., Federal and State parks,	National and State mon	ist adjacent to or in proximity to the site, uments, wetlands, prairie potholes? vious; do not answer "no" without		
No, there are no sensitive enviro	nmental areas at or close t	o the site.		
The area is entirely developed (c.a. 1940s). The closest waterbody to the site is the San Gabriel River. It runs parallel to the site approximately 1 mile NW of the NW OU2 plume boundary. All other surface water drains over the site in concrete lined washes and drains where there is no potential for contact with contaminated groundwater.				
Heritage Park (~8 acres) is a small urban green space located over the south-west tail of the groundwater plume at Hathaway Dr. and Ontiveros Pl. This mowed grass and wooded area is the only park within OU2. The next closest green space is York Park (~13 acres), a residential athletic field with mowed grass at the corner of Mulberry St. and Santa Fe Springs Rd. This is outside of the known groundwater plume area. Little Lake Park (~20 acres), consisting of mowed grass and a wooded area, is also outside of the known groundwater plume at Lakeland Rd. and Pioneer Blvd.				
Please provide the source(s) o their general location on the s		entify these sensitive areas, and indicate		
A site visit and aerial photo	review did not identify	any sensitive areas.		
10. What type of facility is loc	ated at the site?			
Chemical Manufactur	ing Mixing	☐ Waste disposal		
Other (specify): The former Omega Chemical Corporation (Omega Facility) was a refrigerant/solvent recycling operation; other PRPs contribute to the plume down gradient.				
11. What are the suspected co maximum concentration level		t the site? If known, what are the		
		VOCs) and other compounds are present in nloroethene [PCE]; trichloroethene [TCE];		

1,1-dichloroethene [1,1-DCE]; cis-1,2-dichloroethene [cis-1,2-DCE]; and chloroform), 1,4-dioxane, and freons (Freon 11 and Freon 113) were identified as the primary chemicals of concern directly beneath the site. Emergent compounds include N-nitrosodimethylamine (NDMA); 1,2,3-trichloropropane (1,2,3-TCP); perchlorate; and hexavalent chromium (Cr[VI]).(CH2M HILL Field Sampling Plan for the Omega Site. November, 2006).

12. Check any potential	l routes of off-site migration	of cont	aminants observed at the site:
Swales	Depressions		Orainage ditches
Runoff	☐ Windblown particulates	\square V	ehicular traffic
Other (specify) groun	ndwater		
13. If known, what is the	he approximate depth to the	water 1	table?
Approximately 3	30 – 100 ft.		
	urface runoff apparent fron does the surface runoff discl		servations? ⊠ yes □ no If yes, to Indicate all that apply.
Surface water ■	☐ Groundwater ☐ S	ewer	Collection impoundment
15. Is there a navigable	waterbody or tributary to a	naviga	ıble waterbody? ☐ yes ⊠ no
	hecklist Non-Flowing Syst		the site? If yes, also complete Section d/or Section IV: Aquatic Habitat
yes	⊠ no		
			nd flood plains are not always obvious; complete Section V: Wetland Habita
0	•		s, please provide a reference. Also, et if additional space is needed for
Passionfruit and other ex	cotic plants were noted adjace	nt to rail	right of way.
of the site? ☐ yes ☒ no		erify th	r animal) known to inhabit the area is information with the U.S. Fish and them next.
	ed for special status species in cies in Los Angeles County.	his area	. None of the habitat requirements were
20. Record weather con	nditions at the time this chec	klist wa	s prepared:
Date:	18-May-07		
Temperature (°C/°F):	70°F		
Wind (direction/speed)	: westerly, 5-10 mph		
	westerry, 5-10 mpn		

Cloud cover: none

IA. SUMMARY OF OBSERVATIONS AND SITE SETTING

Completed by: Cameron A Irvine Affiliation: CH2M HILL

Additional Preparers:

Site Manager: Tom Perina/CH2M HILL

Date: 8-Jun-07

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED 1. Are there any wooded areas at the site? \square yes \boxtimes no If no, go to Section IIB: Shrub/Scrub. No natural woodlands 2. What percentage or area of the site is wooded? (____). Indicate the wooded area on the site map which is attached to a copy of this checklist. Please identify what information was used to determine the wooded area of the site. 3. What is the dominant type of vegetation in the wooded area? (Underline one: Evergreen/Deciduous/Mixed) Provide a photograph, if available. **Dominant plants, if known:** 4. What is the predominant size of the trees at the site? Use diameter at breast height. \Box 0-6 in. 6-12 in. $\square > 12$ in. 5. Specify type of understory present, if known. Provide a photograph, if available. IIB. SHRUB/SCRUB 1. Is shrub/scrub vegetation present at the site? \square yes \boxtimes no If no, go to Section IIC: Open Field. 2. What percentage of the site is covered by scrub/shrub vegetation? (____ % / ____ acres). Indicate the areas of shrub/scrub on the site map. Please identify what information was used to determine this area. 3. What is the dominant type of scrub/shrub vegetation, if known? Provide a photograph, if available. 4. What is the approximate average height of the scrub/shrub vegetation? 0-2 ft. 2-5 ft. $\square > 5$ ft.

Sparse

5. Based on site observations, how dense is the scrub/shrub vegetation?

Patchy

Dense

IIC. OPEN FIELD

1. Are there open (bare, barren) field areas present at the site? \square yes \boxtimes no If yes, please indicate the type below:
☐ Prairie/plains ☐ Savannah ☐ Old field ☐ Other (cultivated farmland)
2. What percentage of the site is open field? (). Indicate the open fields on the site map.
3. What is/are the dominant plant(s)? Provide a photograph, if available.
4. What is the approximate average height of the dominant plant?
5. Describe the vegetation cover:
IID. MISCELLANEOUS
1. Are other types of terrestrial habitats present at the site, other than woods, scrub/shrub, and open field? \square yes \boxtimes no If yes, identify and describe them below.
2. Describe the terrestrial miscellaneous habitat(s) and identify these area(s) on the site map.
3. What observations, if any, were made at the site regarding the presence and/or absence of insects, fish, birds, mammals, etc.?
Several hours were spent touring the site without seeing any substantial habitat or wildlife.
4. Review the questions in Section I to determine if any additional habitat checklists should be completed for this site.

III. AQUATIC HABITAT CHECKLIST -- NON-FLOWING SYSTEMS

Note: Aquatic systems are often associated with wetland habitats. Please refer to Section V, Wetland Habitat Checklist

1. What type of open-water, non-flowing system is present at the site?
☐ Natural (pond, lake) ☐ Artificially created (lagoon, reservoir, canal, impoundment)
2. If known, what is the name(s) of the waterbody(ies) on or adjacent to the site?
The closest waterbody to the site is the San Gabriel River. It runs parallel to the site approximately 1 mile NW of the NW OU2 plume boundary. All other surface water drains over the site in concrete lined washes and drains where there is no potential for contact with contaminated groundwater.
3. If a waterbody is present, what are its known uses (e.g.: recreation, navigation, etc.)?
4. What is the approximate size of the waterbody(ies)?
5. Is any aquatic vegetation present? \square yes \square no If yes, please identify the type of vegetation present if known.
☐ Emergent ☐ Submergent ☐ Floating
6. If known, what is the depth of the water?
7. What is the general composition of the substrate? Check all that apply.
□ Bedrock □ Sand (coarse) □ Muck (fine/black) □ Boulder (>10 in.) □ Silt (fine) □ Debris □ Cobble (2.5-10 in.) □ Marl (shells) □ Detritus □ Gravel (0.1-2.5 in.) □ Clay (slick) □ Concrete □ Other (specify)
8. What is the source of water in the waterbody?
☐ River/Stream/Creek ☐ Groundwater ☐ Other (Precipitation) ☐ Industrial discharge ☐ Surface runoff
9. Is there a discharge from the site to the waterbody? \square yes \square no If yes, please describe this discharge and its path.
10. Is there a discharge from the waterbody? \square yes \square no If yes, and the information is available, identify from the list below the environment into which the waterbody discharges.
☐ River/Stream/Creek ☐ onsite ☐ offsite Distance: Leon River 200 ft. North ☐ Groundwater ☐ onsite ☐ offsite ☐ Wetland ☐ onsite ☐ offsite ☐ Impoundment ☐ onsite ☐ offsite

- 11. Identify any field measurements and observations of water quality that were made. For those parameters for which data were collected provide the measurement and the units of measure below:
- 12. Describe observed color and area of coloration.
- 13. Mark the open-water, non-flowing system on the site map attached to this checklist.
- 14. What observations, if any, were made at the waterbody regarding the presence and/or absence of benthic macroinvertebrates, fish, birds, mammals, etc.?

IV. AQUATIC HABITAT CHECKLIST -- FLOWING SYSTEMS

Note: Aquatic systems are often associated with wetland habitats. Please refer to Section V, Wetland Habitat Checklist.

1.	What type(s) of flowing water system(s) is (are) present at the site?
	River Creek Dry wash Arroyo Brook Artificially Intermittent Stream Channeling created Other (specify) ditch, etc.)
2.	If known, what is the name of the waterbody?
	For natural systems, are there any indicators of physical alteration (e.g., channeling, debris,)? \square yes \square no If yes, please describe indicators that were observed.
4. V	What is the general composition of the substrate? Check all that apply.
	□ Bedrock □ Sand (coarse) □ Muck (fine/black) □ Boulder (>10 in.) □ Silt (fine) □ Debris □ Cobble (2.5-10 in.) □ Marl (shells) □ Detritus □ Gravel (0.1-2.5 in.) □ Clay (slick) □ Concrete □ Other (specify)
5. V	What is the condition of the bank (e.g., height, slope, extent of vegetative cover)?
	s the system influenced by tides? yes no What information was used to make this ermination?
	s the flow intermittent? \square yes \square no If yes, please note the information that was used in king this determination.
	s there a discharge from the site to the waterbody? \square yes \square no If yes, please describe the charge and its path.
ava	s there a discharge from the waterbody? \square yes \square no If yes, and the information is ilable, please identify what the waterbody discharges to and whether the discharge is on site off site.
tho	Identify any field measurements and observations of water quality that were made. For se parameters for which data were collected, provide the measurement and the units of asure in the appropriate space below:
11.	Describe observed color and area of coloration.
	Is any aquatic vegetation present? yes no If yes, please identify the type of vegetation sent, if known.
	☐ Emergent ☐ Submergent ☐ Floating
13.	Mark the flowing water system on the attached site map.
14.	What observations were made at the waterbody regarding the presence and/or absence of

benthic macroinvertebrates, fish, birds, mammals, etc.?

V. WETLAND HABITAT CHECKLIST 1. Based on observations and/or available information, are designated or known wetlands **definitely present at the site?** yes no Please note the sources of observations and information used (e.g., USGS Topographic Maps, National Wetland Inventory, Federal or State Agency, etc.) to make this determination. 2. Based on the location of the site (e.g., along a waterbody, in a floodplain) and site conditions (e.g., standing water; dark, wet soils; mud cracks; debris line; water marks), are wetland habitats suspected? \(\sigma\) yes \(\sigma\) no If yes, proceed with the remainder of the wetland habitat identification checklist. 3. What type(s) of vegetation are present in the wetland? Submergent **Emergent** Wooded Scrub/Shrub Other (specify) 4. Provide a general description of the vegetation present in and around the wetland (height, color, etc.). Provide a photograph of the known or suspected wetlands, if available. 5. Is standing water present? yes no If yes, is this water: Fresh Brackish What is the approximate area of the water (sq. ft.)? 6. Is there evidence of flooding at the site? What observations were noted? Buttressing Water marks Mud cracks Debris line Other (describe below) 7. If known, what is the source of the water in the wetland? Stream/River/Creek/Lake/Pond Groundwater ☐ Flooding Surface Runoff 8. Is there a discharge from the site to a known or suspected wetland? \(\sqrt{\text{yes}} \sqrt{\text{no If ves,}} \) please describe. 9. Is there a discharge from the wetland? \square yes \square no. If yes, to what waterbody is discharge released? Groundwater Surface Stream/River Lake/Pond Marine 10. If a soil sample was collected, describe the appearance of the soil in the wetland area.

11. Mark the observed wetland area(s) on the attached site map.

Underline or write in the best response.

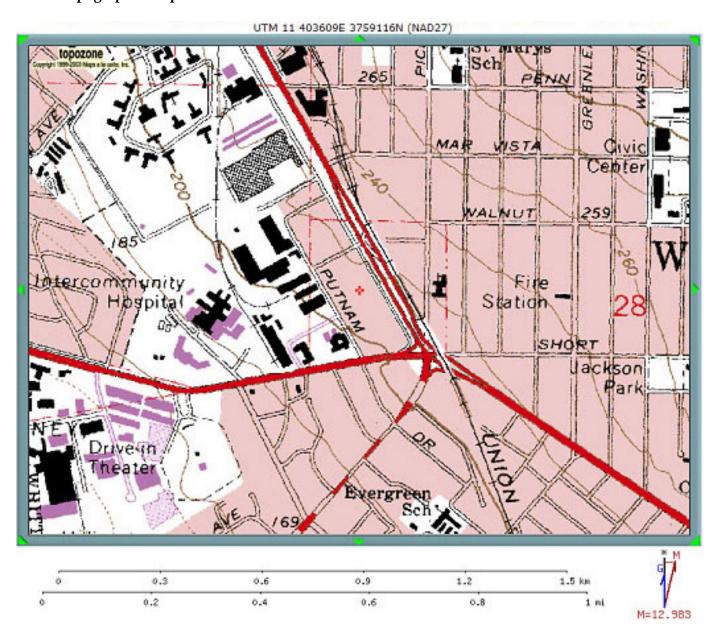
Color (blue/gray, brown, black, mottled):

Water content (dry, wet, saturated/unsaturated):

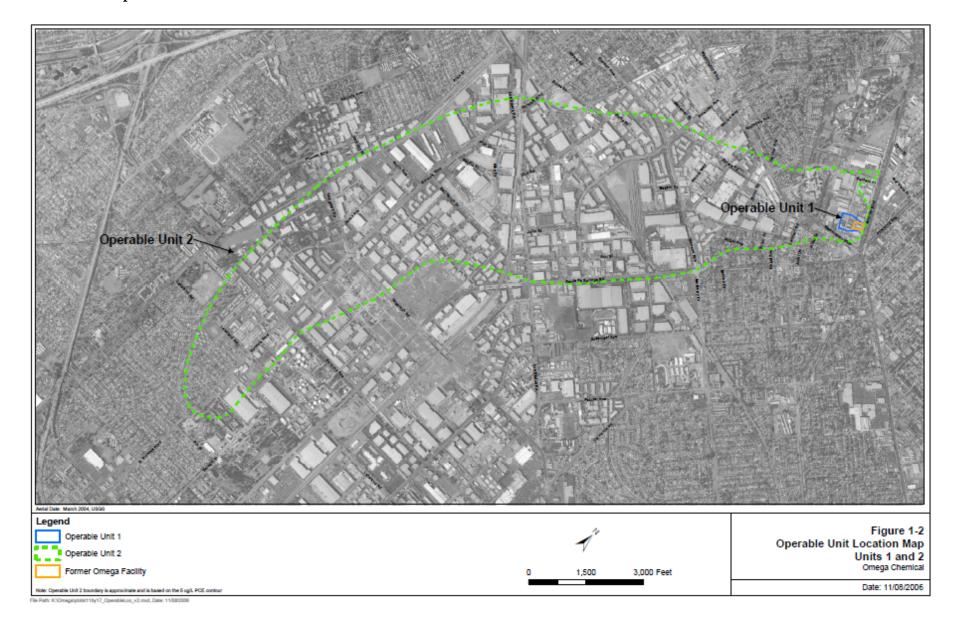
REFERENCES

California Department of Fish and Game (CDFG). 2005. Rare Find Natural Diversity Data Base.

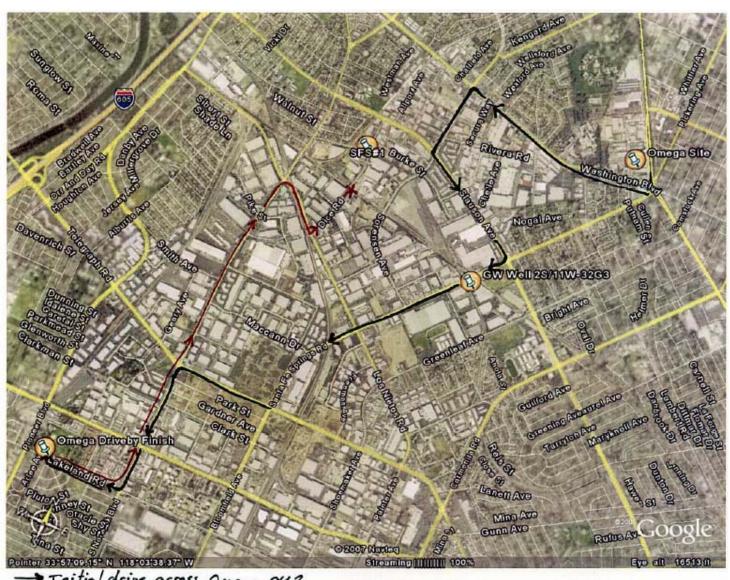
USGS Topographic Map of the contamination source for OU2.



OU2 Site Map



Site visit windshield tour route across OU2.



Dinter 33-57-00-15- N 113-03-30-37-W Streaming || || 11111 100003

Tritial drive across Onega ouz

Return across ouz to point of interest (Mckessor/Angeles Gw treatment)

Project Photo Log
Project Description: Omega Chemical Superfund Site OU1/2 - GW contam. site visit Project Number: 335392.RA.01

Camera Make/Model: Sony. 1.3 MP digital Photographer: Cam Irvine

Date (mm/dd/yy)	Time	Photo No.	Facing Direction	Description
18-May-07	9:40	6362	S	front of OU1. 12512 Whittier Blvd.
"	9:40	6363	N	Whittier Blvd. in front of OU1
"	"	6364	SW	Former Skateland site.
"	"	6365	N	Ned and Rich in front of OU1
"	"	6366	N	Ned and Rich in front of OU1
"	"	6367	N	Tom and Chris in front of OU1
"	11:30	6368	W	Site rewiew/history from Tom in front of 12512 Whittier Blvd.
"	"	6369	N	Walking along Putnam St. around OU1
"	"	6370	Е	Bishop company (12519 Putnam St.)
"	"	6371	N	Terra Pave company (12511 Putnam St.)
"	"	6372	Е	Dick Madsen Roofing (next business north of Terra Pave on Putnam St.)
"	12:00	6373	Е	Park at Lakeland Rd and Pioneer Blvd. First stop after drive across OU2
"	"	6374	NE	II
"	"	6375	N	"
"	12:30	6376	W	Railway right-of-way between Angeles (chemical plant) and McKesson (now a
"	"	6377	NW	shipping container storage facility) sites. quail have been observed here near
"	"	6378	W	former groundwater treatment facility discharge.
"	"	6379	Е	II .
11	"	6380	W	II
"	"	6381	-	Passioinfruit plant (<i>Passiflora edulis</i>) growing in ROW
"	"	6382	-	II
"	"	6383	-	II
"	"	6384	-	II .
"	"	6385	-	II
"	"	6386	-	II
"	"	6387	W	railway ROW
"	"	6388	Е	RDS Inc. toe-truck [sic] sign at former McKesson site
"	14:00	6389	Е	BodyCote testing inc. next to 2S/11W-32G3 well location on SPS Blvd.
"	"	6390	Е	Wash adjacent to 2S/11W-32G3 well location on SPS Blvd.
"	"	6391	W	И
11	"	6392	Е	Business in front of 2S/11W-32G3 well location on SPS Blvd.
11	"	6393	S	Wash adjacent to 2S/11W-32G3 well location on SPS Blvd.
"	"	6394	N	Rich in front of 2S/11W-32G3 well location on SPS Blvd. (well not found)
"	"	6395	Е	Rail ROW from SPS Blvd.
"	"	6396	W	Rail ROW from SPS Blvd.
"	"	6397	Е	High Pressure gas line vault in rail ROW

Notes:

